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ABSTRACT

Equity is an important part of technology education. Without adequate equipment and training, schools shortchange students and limit their ability to compete with their more fortunate peers. This is especially important at the middle school level because computer assisted instruction not only taps into adolescents' natural curiosity, but also can expand their thinking. Milwood Middle School, Kalamazoo (Michigan) is an example of an urban school that has added cutting edge technology and better-trained teachers to boost students' achievement. Milwood has a computerized grading system and a technology-based curriculum to track each student's progress in the basic skills, so that teachers can send weekly reports home to parents. The school paid for its technology program through grants. The differences in technology applications in the schools usually comes down to school finances. The city and suburbs of Grand Rapids (Michigan) illustrate the contrast between wealthier suburban districts where technology resources abound, and poorer urban districts that may have trouble even upgrading their wiring. Because voters are less likely to approve funding projects that don't benefit their own children, it is necessary for school districts to share technology resources and cooperate on plans that will benefit the entire community. Some suggestions are offered for the implementation of educational technology. These center on involving a broad range of stakeholders in decision-making and frequent evaluation of implementation progress and planning. (Contains several useful resources for technological advancement.) (SLD)

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ED 423 318

MIDDLE START TECHNOLOGY FACTS

BY HOLLY HOLLAND

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Five years ago, Kalamazoo's Milwood Middle School was about as technologically advanced as a Sputnik-era spacecraft. The only computers in the building, Apple IIe models, couldn't handle modern software. The building's electrical wiring hadn't been updated since the 1950s. And few teachers understood computer technology or how it could aid their instruction.

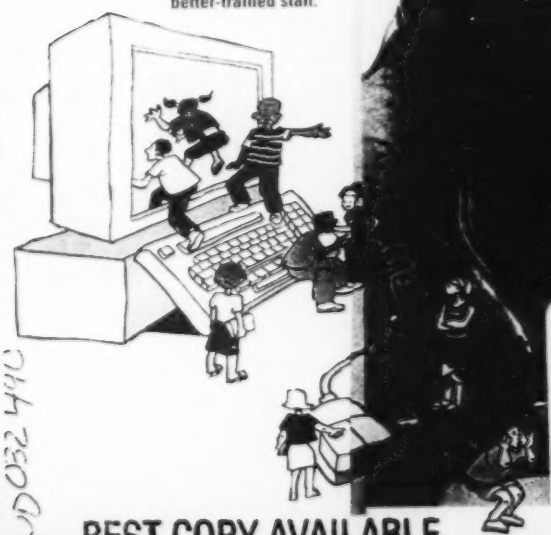
Today, Milwood has cutting-edge technology and better-trained staff members who are learning to use new resources to boost student achievement. For example, the school's computerized grading system and technology-based curriculum track each student's progress in essential skills, enabling teachers to send weekly reports home to parents.

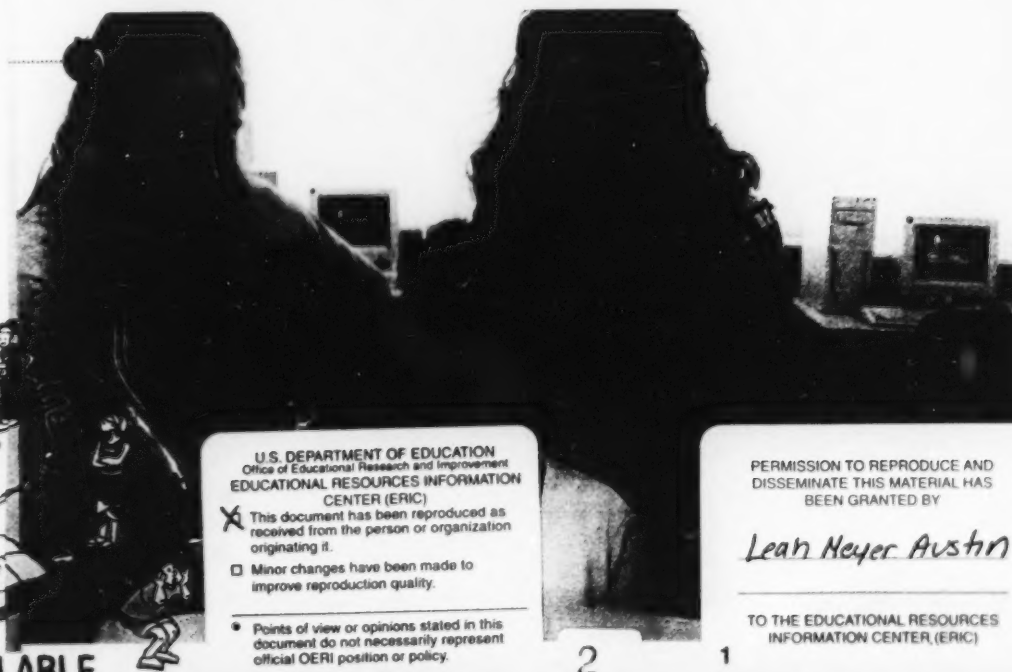
"It's just impossible [for a teacher] to do that manually with 150 kids," said Milwood Principal Darrell Clay. "Now we're seeing an increase in the quality of student work because they know it's being reported to parents. Also, there's greater intrinsic motivation because kids know when they've completed their assignments."

Milwood paid for the school's technology transformation with grants of $80,000 for new wiring, $70,000 for a fully networked computer lab, and $40,000 for new computers and overhead projectors in every classroom. Although he acknowledges the limitations of software that mimics low-level worksheets, Clay believes computer-assisted instruction can open doors for Milwood's mostly disadvantaged students.

"I was reading a lot of research about this being a pretty snazzy way of reaching at-risk kids. They need extra incentives and extra instructional strategies," he said. "I also believe that technology should not just be for the 'haves.' [Our kids] had a right to have this available to them."

Today, Milwood has cutting-edge technology and better-trained staff.





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Michigan's middle schools must answer some key questions to assess technology's role in education, such as how to:

- Provide equal access to all students;
- Find adequate funds;
- Train teachers;
- Blend computer skills into the curriculum.

Computer-assisted instruction taps into adolescents' curiosity and expands their thinking.

The goal should not be to introduce more games and gimmicks to the curriculum, but to give adolescents the chance to learn in a global classroom. Middle-school students need opportunities to apply basic academic skills, connect with their communities, and solve real social problems. Computer-assisted instruction not only taps into adolescents' natural curiosity about the world around them, but with thoughtful planning can expand their thinking.

That's why equity is such an important part of the technology equation. Without adequate equipment and training, schools shortchange students and limit their ability to compete with their more fortunate peers.

The Michigan Information Technology Commission, which met for the first time in January, plans to issue a report this summer about the state's technology efforts. "So far, researchers have found very little consistency among school districts," said staff coordinator Tim Quinn. The state has built "islands of excellence," he said, but lacks a system dedicated to spreading success.

The difference usually comes down to school finances. Per-pupil expenditures start at about $5,000 in some urban and rural school districts and peak at about $11,000 in suburban school districts, such as those outside Detroit. Poorer school districts often don't have enough money for basic needs, while wealthier districts can earmark funds for technology upgrades.

The city and suburbs of Grand Rapids provide a case in point. In the suburban Forest Hills Public Schools, higher property values and population growth enabled the district to pass several bond issues, including a $50 million spending package in 1995 that set aside $9 million for technology. The money enabled Forest Hills to create classes that students from both district high schools attend together without leaving their respective buildings. Additions include new computer labs, so middle- and high-school teachers can link instruction to real workplace projects developed by community business partners.

Yet, at the same time that the Forest Hills schools are leaping into the Information Age, many nearby Grand Rapids schools don't have enough money to update their electrical wiring for high-speed computers and fiber optics. Forest Hills Superintendent Mike Washburn believes this gap will widen in the next few years because state laws prohibit school districts from increasing millage rates without a countywide referendum.

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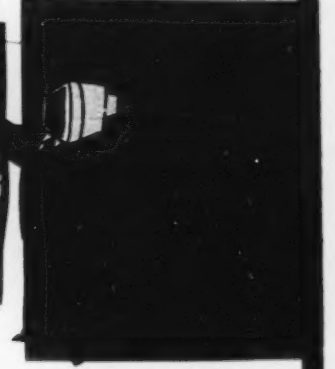
Computer labs link instruction to real workplace projects developed by community business partners

IMPLEMENTATION

In addition to equity issues, schools must carefully consider technology implementation. Says B.J. Eib, director of the Laboratory for Professional Development in Instructional Technology at the Indiana University Center for Excellence in Education: "You don't write a five-year plan and end it." She suggested that educators keep these planning principles in mind:

- Involve a broad range of stakeholders in decisions. "Unless the end users can describe their needs so people can respond to them, [technology] is not likely to impact education in any substantial way," she said. "You can't put a computer in an English teacher's classroom without someone working with that teacher and thinking about the curriculum. What strengths and weaknesses does she have? Where does she want to go? And how can technology help improve teaching and learning?"
- Develop a vision for technology and constantly evaluate how far you are from achieving it.
- Determine your needs before you approve the budget. Treat money as a resource and start prioritizing.
- Keep the community informed at all times.
- Allocate enough time and money for staff training. And remember that people will need varying levels of support and inspiration. "Sometimes we make teachers take larger steps than they're able to," Eib said. "We need to encourage them to make what steps they can now, then ask them to take larger leaps later."



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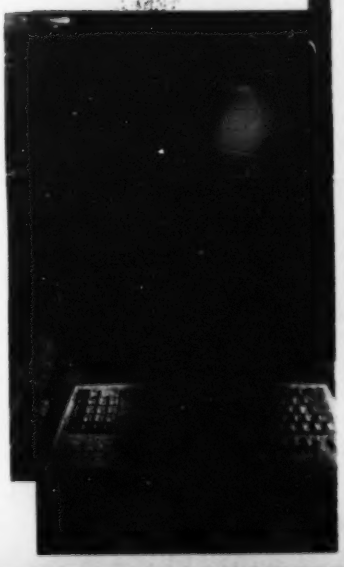

Forest Hills recently helped the Grand Rapids schools prepare for a $400 million referendum.

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"In my area, there are 20 school districts," he said, adding that "very rarely" will voters approve funding projects that don't involve their own children. That's why he believes school districts must share scarce technology resources and cooperate on plans that will benefit the entire community.

"You can't sit in a more affluent area and build a moat around yourselves and think you're serving your community well," Washburn said. "You have to look at it in a more global way. You're only as strong as your weakest links."

Resources

- Michigan Governor John Engler recently announced the creation of the Michigan Virtual University, a technology training system for business and industry funded by an estimated $35 million in proceeds from casino taxes. Engler proposes to set aside $15 million of this fund to pay for education training and for classroom grants for which teachers can compete, beginning next school year. The initiative also calls for 200 Learning Campuses to be set up by 1999. These sites will provide evening and weekend access to technology resources in schools and libraries around the state.

- The North Central Regional Educational Laboratory (NCREL) is one of 10 federally funded educational research and development offices around the country. NCREL, which serves the upper Midwestern region, specializes in technology. Contact Dr. Jeri Nowakowski, Executive Director, 1900 Spring Road, Suite 300, Oak Brook, IL 60523. TEL: 630-571-4700. E-mail: nowakows@ncrel.org. The group's Web site is http://www.ncrel.org/sdrs/pathwayg.htm.

- The Center for Excellence in Education at Indiana University offers training and ongoing support to schools in technology implementation. The center also will begin helping school districts conduct technology audits. Contact B.J. Eib at 201 N. Rose Ave., Bloomington, IN 47405. TEL: 812-856-8203.

- *Meridian: A Middle School Computer Technology Journal* is a new online publication that includes relevant articles and research: http:// www.ncsu.edu/meridian/issue.html.

- *MidLink Magazine* is an award-winning online publication created for and by middle-level students and teachers: http://longwood.cs.ucf.edu/~MidLink.

- *Plugging In: Choosing and Using Educational Technology* is a booklet that shows schools how to develop effective technology plans. Published by the National Education Knowledge Industry Association, 1200 19th St., N.W., Suite 300, Washington, DC 20036. TEL: 202-429-5101. PRICE: $5, which includes shipping.

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